

**REPLY UNDER 37 CFR 1.116  
EXPEDITED PROCEDURE  
EXAMINING GROUP ART UNIT 2853**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

	)	Confirmation No.: 5208
	)	
	)	Group Art Unit: 2853
	)	
Applicant: NOUTARY	)	Examiner: Manish S. Shah
	)	
Application No.: 10/520,987	)	<b>RESPONSE</b> July 22, 2009 Final Office
	)	Action
Filing Date: August 10, 2005	)	
	)	Docket No.: JG-ELK-5209/ZS25.002
For: PRINTING INK FOR INK-JET	)	
PRINTING	)	<b>PTO Customer Number 28062</b>
	)	Buckley, Maschoff & Talwalkar LLC
	)	50 Locust Avenue
	)	New Canaan, CT 06840
	)	

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Mail Stop AF (via EFS)  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This communication is submitted in response to the Final Office Action mailed July 22, 2009.

It is noted that the applicants have submitted two Change of Correspondence Address forms to change the correspondence address to the undersigned attorney at the firm of Buckley Maschoff and Talwalkar LLC. One such request was filed on March 30, 2009 and the 2nd was filed on July 27, 2009. Both were filed electronically. Copies of each along with the respective electronic filing receipts are forwarded herewith. It is requested that the appropriate changes be made in the database to insure that all future communications are sent to the undersigned attorney at the correct address, namely:

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The Examiner has again rejected claims 1-14 as being provisionally unpatentable on the ground of non-statutory obviousness-type double patenting over US Patent No. 7,368,485 patent in view of Laksin, et al, WO 00/31189. Since this is a provisional double patenting rejection there is no need to respond to it at this time.

As applicants previously pointed out, the Examiner's assertion that the subject matter claimed in the present application is covered by the claims of the '485 patent is not correct. The present claims require a composition which is substantially free of multi functional (meth) acrylates and which contains at least one monofunctional (meth) acrylate monomer. The claims of the '485 patent require the presence of at least one multi functional (meth) acrylate monomer. Since the composition of the present claims must be free of such a multifunctional (meth) acrylate monomer, the presently claimed composition cannot possibly be within the scope of the '485 patent and thus the provisional obviousness-type double patenting rejection is improper and should be withdrawn.

The Examiner has again rejected claims 1-14 as being obvious under 35 U.S.C. 103(a) over the Fassam et al 'GB '847 reference (Referred to as Robert et al by the Examiner) (hereinafter Fassam) in view of Mantell, et al. '346 (hereinafter Mantell). Reconsideration and withdrawal of this rejection are requested. The Examiner asserts that the Fassam discloses photocurable ink compositions composed of an acrylate oligomer, multifunctional acrylate monomers, water, 2-30 weight percent of a vinyl ether monomer and a free radical photoinitiator, referring to the abstract and pages 5, lines 1-3. The Examiner concedes that the Fassam reference does not disclose the claimed viscosity of less than 50mPas at 25 °C which is desirable for inkjet inks and which is recited in the present claims. The Examiner then relies on Mantell. as disclosing inkjet compositions having a viscosity from 0.7 to 15cP at 25 °C.

The Fassam patent is directed to a composition suitable solely for screen-printing and the examples only relate to screen-printing techniques. There is no mention whatsoever in the reference of the viscosity of the composition. Certainly, there is no indication that the composition is suitable for inkjet printing. Also, there is no disclosure that the composition is water free.

In contrast, The Mantell reference is directed to inks for thermal ink jet printers but also indicates that the compositions may contain water. This contrasts to the present claims which recite that the ink jet composition is substantially free of water as well as volatile organic solvents and multifunctional (meth) acrylates. Thus the Mantell compositions do not contain (meth) acrylate monomers and there is no suggestion in this reference that the compositions showed or could contain (meth) acrylate monomers.

Fassam is concerned with screen printing inks that are acrylate based, and include water, an oligomer and a free radical photoinitiator (See the paragraph bridging pages 5 and 6 and the 4th full paragraph on page 6 of the reference). In contrast, Mantell is concerned with ink-jet inks that are not acrylate based, and include a vinyl ether or an epoxy and a photoacid-generating initiator, which are suitable for cationic polymerization (see column 5, line 50- column 6, line 25 of Mantell). The properties of an acrylate based-, oligomer containing-, radical polymerizable ink are entirely different to those of a vinyl ether or epoxy based ink that polymerizes cationically.

Thus, Fassam and Mantell are directed to two entirely different ink systems. The Examiner should appreciate that ink compositions must be closely controlled in order to meet the demands for modern printing processes and to provide printed films having desirable properties. In other words, individual ink compositions are very finely balanced and one skilled in this art would not assume that individual components can be indiscriminately removed, replaced or added without deleteriously affecting the desirable properties of the ink. The person skilled in the art would not consider every single type of ink that is publically available when attempting to produce a new ink-jet ink because ink-jet printing places very specific demands on a printing ink. Such skilled artisan would not pick and choose individual components from entirely different ink

systems and expect to achieve an ink that has desirable ink-jet printing properties and would provide a high quality printed film.

Because the prior art references relied on by the Examiner relate to different ink systems, the person skilled in the art would not consider these documents together when attempting to produce a new ink and would not have 'cherry picked' individual components from the inks disclosed in these two documents with the expectation of providing an ink-jet ink having the desired properties.

Furthermore, the demands of ink-jet printing are entirely different from those of screen printing. Thus, the person skilled in the art would not consider Fassam and Mantell together, and would certainly not adapt the teaching of Fassam in view of Mantell or vice versa.

Additionally, either Fassam nor Mantell discloses or suggests an ink-jet ink according to claim 1 of the present application that contains a monofunctional (meth)acrylate monomer. Thus, even if the person skilled in the art were to combine the teaching of these documents, he or she could not possibly arrive at the present invention.

The Examiner asserts that "[Fassam] also discloses that the multifunction (meth)acrylate contain mono-functional (meth)acrylate monomers, referring to page: 2, lines 1 to 10. However, this is an inaccurate description of the disclosure of the reference. This section of the reference which begins in the 2nd paragraph on page 1 refers to examples of prior compositions and describes at pages 1 and 2, three such prior art compositions. In the 1st paragraph on page 2 of the reference, a prior art composition composed of an epoxy acrylate polymers and/or polyurethane acrylate oligomers dispersed in mono-and/or multi-functional acrylate monomers with a free radical initiator are described. However, in the last full paragraph on page 2 of the reference, it is pointed out that coatings of this composition (type iii) can be cured rapidly that the cure coatings tend to be very glossy with a high billed to to the 100% content of polymerizable. The reference then points out that this can be a particular problem when multiple printing is affected which leads to the print having a poor "feel". Thus, compositions containing these specific components are clearly considered disadvantageous from the disclosure of this reference.

The Examiner appears to suggest that this discussion of prior art inks means that the inks of the invention disclosed in Fassam must also include a monofunctional acrylate monomer. However, there is no mention of monofunctional acrylate monomers in the inks of Fassam, however. If the Examiner is suggesting that the term "multifunctional acrylate" includes monofunctional acrylates, then the Examiner's attention is directed to the final paragraph of page 4 of Fassam which states that "multi-" means di-, tri- or tetra- functional.

Furthermore, the prior art discussion provided in the first paragraph of page 2 of Fassam makes the difference between monofunctional and multifunctional acrylate monomers clear and, given the absence of any mention of monofunctional acrylate monomers in the discussion of the invention, one can only conclude that monofunctional acrylate monomers were not intended to be included in the Fassam invention.

The Examiner further asserts that Mantell suggests replacing water with glycol vinyl ether monomers to obtain an ink jettable (paragraph bridging pages 4 and 5 of the office action). However the disclosure of these references does not support this conclusion. More specifically, Fassam discloses an ink composition comprising a water reducible multifunctional polyurethane acrylate oligomer, a multifunctional acrylate monomer, water and a vinyl ether monomer together with a free radical photoinitiator (see the top of page 4). The vinyl ether is preferably included in an amount of 2 to 30 % by weight (see page 5, lines 1-2). Thus, Fassam already appreciates that vinyl ether monomers are beneficial in the ink compositions disclosed therein and the amount of vinyl ether monomer that provides the ink with beneficial properties is disclosed. The person skilled in the art would not be motivated to change the amount of vinyl ether monomer in view of Mantell because this document is concerned with entirely different ink compositions that have different requirements and properties, and because Fassam clearly teaches that vinyl ether monomers should be used. Mantell does not therefore add anything to the teaching already provided by Fassam regarding vinyl ether monomers.

Furthermore, the person skilled in the art would not be led to remove the water from the ink compositions of Fassam and expect to achieve an ink that would have desirable properties, and certainly would not expect to achieve an ink that would be

suitable for ink-jet printing. As mentioned above, the inks disclosed in Fassam comprise a multifunctional polyurethane acrylate oligomer and multifunctional acrylate monomers. These components would serve to increase the viscosity of the ink. The oligomer can be semi-solid at ambient temperature and the inks can contain up to 20 to 60 % by weight of oligomer. However, the oligomer must be dilutable with water (see the penultimate paragraph of page 4 of Fassam). Thus, it is clear that water is an essential feature of the inks disclosed in Fassam because water is essential in order to dilute the oligomer to provide a liquid ink composition. This mandates against any conclusion on the part of one skilled in the art considering removing water from the inks disclosed in Fassam.

The Examiner asserts that Mantell states that some of the inks disclosed therein have adequate jetting properties even in the absence of water (presumably referring to column 5, lines 13-16). However, this discussion in column 5, particularly lines 13 to 22, must be read in the context of the entire disclosure of Mantell. Specifically, while Mantell found that inks based mainly on ethylene glycol monovinyl ether have adequate jetting properties in the absence of water (see example 1 of Mantell, for example, where the ink comprises only ethylene glycol monovinyl ether and a colorant), this teaching cannot be applied to Fassam, because the inks disclosed in Fassam include high viscosity components such as oligomers and multifunctional monomers. Removal of water from the inks disclosed in Fassam would not therefore result in an ink having a lower viscosity.

The Examiner also appears to suggest that Fassam motivates the person skilled in the art to replace water with a vinyl ether monomer (see the paragraph spanning pages 4 and 5 of the office action). The wording used by the Examiner corresponds to the second paragraph of page 3 of Fassam but this paragraph is concerned with the prior art, and particularly with the use of N-vinyl-2-pyrrolidone, which is not a vinyl ether. Clearly, this disclosure does not relate in any way to the present invention. Most certainly, since Fassam teaches that water *and* vinyl ether monomers are essential for the inks disclosed therein, one skilled in this art would find no reason provided here to remove water from the inks.

Assuming *arguendo* that the Examiner's suggestion that the combination of the prior art documents somehow teaches that vinyl ether monomers are superior to water and acrylate monomers, and that the person skilled in the art would therefore be led to produce an ink that does not include water, it must follow that the person skilled in the art must also be led to produce an ink that does not include acrylate monomers and which would not therefore fall within the scope of the invention.

The Examiner has responded to applicants previously submitted arguments that as claimed, the present invention is substantially free from multifunctional (meth) acrylate with the assertion that "substantially free" means almost free, **not** totally free, and therefore the combination of references still read some the claims.

The Examiner's interpretation of this phrase is not correct. One skilled in this art would understand that the phrase "substantially free", a relative term, does not mean "totally free", which is an absolute term. Indeed, one skilled in this art, with an understanding of the chemistry of the ink-jet ink compositions with which the present invention is concerned, would be aware that no composition can be "totally free" of any particular component. There may always be trace amounts of impurities present which may or may not be analytically detectable. Rather, one with skill in this art would understand that the term "substantially free" as used in the present claims means that the components referred to as being missing, in this case, water and multifunctional (meth) acrylates, are not present in amounts sufficient to detrimentally or adversely affect the desired properties of the claimed composition. Accordingly, the expression "substantially free" as used in the claims is sufficiently definite to distinguish the present invention from those described in the references and the combination of references does not read on the claims.

Understanding that "substantially free" means that any amount of multifunctional (meth)acrylate that might be present in the ink is insufficient to detrimentally effect the desirable properties of the claimed compositions, the present invention is clearly differentiated from Fassam, which states that multifunctional acrylate monomers are required in order to increase the cross linked density, and are present in an amount from 8 to 35 % by weight (see the final paragraph of page 4).

Additionally, the Fassam reference does not disclose an ink composition that is substantially free of water, substantially free of multi-functional (meth) acrylates or an ink composition comprising a monofunctional (meth) acrylate monomer. Of particular significance is the fact that Fassam does not disclose an ink-jet ink or, for that matter, any ink, having a viscosity of less than 50 mPas at 25° C. Particularly significant in this regard is the fact that the Fassam reference is concerned solely with compositions useful for screen printing which inherently means they would exhibit high viscosities which would be unsuitable and unusable for inkjet ink compositions. .

These references provide no motivation for one with ordinary skill in this art to combine their teachings since Fassam is concerned with compositions for screen printing composed of a multifunctional polyurethane acrylate oligomer, a multifunctional acrylate monomer, water and a vinyl ether monomer whereas Mantell is concerned with an ink jet-ink composition composed of an epoxy and/or vinyl ether. Each of the references discloses completely different and incompatible types of curable compositions. In the absence of the disclosure provided by the present application, one with skill in this art would find no reason to pick and choose individual components disclosed in each of these documents and combine them and expect to produce a composition with predictable properties useful for an ink-jet ink composition.

The references relied on are devoid of any information which remotely suggests this result to one skilled in the art. The claims are thus patentable over the combination of art and favorable reconsideration and withdrawal of the rejection and prompt notice to that effect are respectfully requested.

Respectfully submitted,

October 22, 2009  
Date

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